



## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6  
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June 9, 2014

### MEMORANDUM

Subject: Results of the Human Health Risk Assessment for the Falcon Refinery Superfund Site, Barge Dock Area (AOC4)

From: Kenneth Shewmake  
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To: Brian Mueller  
Remedial Project Manager

#### **Results of the Human Health Risk Assessment for AOC4:**

The purpose of this memo is to document the results of the human health risk assessment (HHRA) for AOC4 of the Falcon Refinery Superfund Site in Ingleside, TX.

The Falcon Refinery Superfund Site occupies approximately 104 acres in San Patricio County, Texas and consist of an inactive oil refinery. The refinery has not been used to produce hydrocarbon products in several years, but it has been used as part of a crude oil storage operation being conducted by Superior Crude Gathering, Inc. The Site has been divided into seven areas of concern (AOCs) based upon former use and location (Figure 1). AOC 4 is approximately 1.6 acres and consist of a barge dock facility. The barge dock facility is fenced and contains several small structures. AOC-4 is separated from the main refinery facility and borders AOC-5 (evaluated separately) which includes the Intracoastal Waterway. The barge dock area is connected to the main refinery area by several abandoned pipelines and one active pipeline. In June 2006 the abandoned pipelines were cut, the contents of the pipelines were removed, and plates were welded on the pipelines. The area represented by AOC4 is being evaluated separately from the remainder of the Site because it does not border the main refinery area.

The site is an industrial area. Future use of the site is expected to remain industrial, and it is not anticipated that the site will be used for residential purposes. However, residents are assessed as potential receptors for the site to provide a baseline evaluation. Residential receptors of concern include a resident adult and child. Ground water sampling within AOC-4 only included results from one monitoring well. Due to the limited ground water sample results, ground water was evaluated qualitatively based upon a comparison to the EPA tap water RSLs and MSL values.

Receptors evaluated in the HHRA for AOC-4 include the resident adult, resident child, and construction worker. Site workers (i.e., landscapers/maintenance workers) and trespassers may also contact AOC-4. However, these receptors are expected to have relatively low contact with the area. The residential and construction worker exposure scenario represents conservative exposure scenarios that would account for all other expected receptor contact with the site. Media of concern for AOC-4 include surface soil, subsurface soil, and ground water. Only one ground water sample was collected

within AOC-4. As a result, ground water was evaluated qualitatively. Results for the exposure scenarios evaluated in the AOC-4 HHRA are presented in the table below.

Human Health Risk Assessment Summary of Results				
Receptor	Media	Carcinogenic Risks <sup>1</sup>	Non-Carcinogenic Hazards	COPC Contributing Significantly to Results
<b>AOC-4</b>				
Surface Soil				
Child Resident <sup>1</sup>	Surface Soil	$5 \times 10^{-3}$	2	Not Applicable
Adult Resident <sup>1</sup>	Surface Soil	$5 \times 10^{-5}$	0.2	Not Applicable
Construction Worker	Surface soil	$6 \times 10^{-7}$	0.6	Not Applicable
Subsurface Soil				
Child Resident <sup>1</sup>	Subsurface Soil	$2 \times 10^{-3}$	0.3	Not Applicable
Adult Resident <sup>1</sup>	Subsurface Soil	$2 \times 10^{-5}$	0.04	Not Applicable
Construction Worker	Subsurface soil	$2 \times 10^{-7}$	0.08	Not Applicable
1 Cancer risk for the resident adult and child is presented as a total lifetime cumulative cancer risk.				

The results indicate that carcinogenic risk for the child and adult resident scenarios are within the cancer risk range but are at a level that normally does not require remediation. The non-carcinogenic risk was below one for all receptors except child resident. The carcinogenic and non-carcinogenic risk for the construction worker scenario were acceptable. Other potential receptors may contact these media. These receptors include landscapers/maintenance workers and trespassers. These workers and trespassers would be expected to visit the site infrequently at contact rates lower than the resident or construction worker. The evaluation of a residential and construction worker exposure represents receptors that are expected to have higher contact with these media. Therefore, the conclusion that there are no human health concerns for residential or construction worker exposure also applies to any other receptors who may visit AOC-4. Ground water was evaluated qualitatively because only one sample result is available for AOC-4. The maximum detected concentration of dissolved arsenic (60.8 µg/L) exceeds both the arsenic tap water RSL (0.045 µg/L) and the MCL (10 µg/L). The maximum detected arsenic concentration is approximately three orders of magnitude higher than the tap water RSL, which would result in carcinogenic risk levels above the EPA acceptable risk range. However, one sample result is not representative of typical exposure to ground water as a tap water source. In conclusion, the HHRA did not reveal potential concerns for human health exposure at AOC-4.





Falcon Refinery Superfund Site  
 Ingleside, San Patricio County, Texas